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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,568

11/01/2006

Ralph Edmund Harris

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EXAMINER

DITRANI, ANGELA M

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

06/13/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/594,568

Applicant(s)

HARRIS ET AL.

Examiner

Angela M. DiTrani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-67 and 76-78 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-67, 76-78 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/10/10, 01/03/11</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/03/2011 has been entered.

Information Disclosure Statement

2. The information disclosure statement filed on 01/03/2011 is a duplicate of the information disclosure statement filed on 09/10/2010. Therefore, the IDS filed 01/03/2011 has not been considered.

3. US 7,786,051 to Lange et al. was not considered; this reference was filed on December 7, 2006, a date after the filing date of the instant application, and, therefore, is not a *prior art* reference.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 50 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 50, the phrase "other configuration" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by

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"other configuration"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 41-67 and 76-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Constien (US 2002/0142919) in view of Cooke, JR. (US 2004/0231845 – cited by Applicant on IDS receipt date 09/10/2010).

With respect to independent claim 1, Constien discloses a process for disrupting filter cake in an underground formation ([0022]; [0026]; [0037]; [0042]; [0061]), which process comprises: providing a solid ([0063]) polymer capable of being converted by hydrolysis into one or more organic acids ([0042]; [0050]-[0051]); introducing the solid polymer into said underground formation containing said filter cake ([0039]; [0042]); and allowing the solid polymer to hydrolyze in the presence of water to produce organic acid such that acid soluble material within the filter cake or adjacent formation is dissolved ([0042]; [0050]-[0051]) .

Constien discloses wherein the solid polymer is used in coating a screen or piece of equipment that is placed in the well, subsequent to which the solid polymer hydrolyzes to release the acid that is used to dissolve the acid soluble material within the filter cake or adjacent formation. Constien, however, fails to disclose wherein the solid polymer is dispersed in a treatment fluid and wherein the treatment fluid is introduced into said underground formation as instantly claimed.

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Cooke, JR. teaches applications of hydrolysable polymers in a well wherein the polymer is a solid polymer ([0025]) of PLA, other degradable polymers, polyesters, polycaprolactone, polyhydroxybutyrate and blends thereof ([0018]-[0019]). The polymers may be dispersed in a treatment fluid, such as a fracturing fluid, completion or workover wellbore fluid, fluid for carrying gravel into a fracpack or gravel pack or fluid for other well operations and introduced into an underground formation by introduction of the treatment fluid for the purpose of hydrolyzing in the treatment fluid so as to be used in subsequent well operations ([0022]). In an alternative embodiment, the solid polymers are applied to a screen or piece of well equipment as a coating for the purpose of protecting the equipment upon placement in the reservoir; subsequent to placement in the well, the polymer degrades ([0026]-[0029]).

Since Constien discloses the application of the solid polymers to well equipment for protection thereof upon placement in the well, subsequent to which the hydrolysis products are released, and Cooke, JR. teaches wherein the solid polymers, some of which are the same as those disclosed by Constien, may be used in such as manner as disclosed by Constien, or, alternatively used in an embodiment wherein they are dispersed in a treatment fluid and introduced into the formation so as to hydrolyze in the treatment fluid for use in subsequent well operations, it would have been obvious to one having ordinary skill in the art at the time the invention was made to disperse the solid polymers of Constien in a treatment fluid and introduce the treatment fluid into the underground formation containing filter cake in order to allow the solid polymers to hydrolyze so as to degrade the acid soluble material, such as calcium carbonate, within the filter cake and adjacent formation.

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With respect to depending claim 44, Constien discloses wherein the solid polymer is a polymer comprising one or more compounds selected from the group as claimed ([0042]; [0050]).

With respect to depending claim 45, Constien et al. discloses wherein hydrolysis of the solid polymer produces a compound selected from the group as claimed ([0042]; [0050]).

With respect to depending claim 46, Constien et al. discloses wherein the solid polymer is a solid polymer selected from the group as claimed ([0042]; [0050]).

With respect to depending claim 47, Constien et al. discloses wherein one or more other substances selected from the group as claimed is incorporated into the solid polymer by encapsulation to allow their controlled release ([0042]; [0043]; [0050]-[0051]).

With respect to depending claim 48, Constien discloses wherein one or more other substances selected from the group as claimed is incorporated into the solid polymer by dissolution or dispersion to allow their controlled release coincident with acid production ([0042]; [0043]; [0050]-[0051]).

With respect to depending claim 49, Constien discloses wherein the said one or other materials released from the solid polymer have functional activity for filter cake treatment or as production chemicals ([0042]-[0058]).

With respect to depending claim 50, Constien discloses wherein the solid polymer is used in a form selected from the group as claimed ([0042]; [0050]; i.e., “other” configuration).

With respect to depending claim 51, Constien, in view of the teaching of placement of the solid polymer in a treatment fluid, teaches incorporating a buffer into the treatment fluid ([0042];

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[0050]; i.e., the acid acts as a buffer when released from the solid polymer into the treatment fluid).

With respect to depending claims 52-57, Constien, in view of the teaching of placement of the solid polymer in a treatment fluid, teaches incorporating into the treatment fluid, i.e., by inclusion with the solid polymer ([0043]), one or more polymer breakers, and, further, wherein the polymer breaker is a hydrolase enzyme, a polysaccharide hydrolyzing enzyme, an enzyme which can hydrolyze a polymer selected from the group as claimed ([0044]-[0046]); an oxidant, and, further, wherein the oxidant is selected from the group as claimed ([0055]-[0056]).

With respect to depending claim 58, Constien discloses wherein the polymer breaker is in the form of a delayed release preparation ([0039]; wherein the reactive component, i.e. polymer breaker, is released from the binder, i.e. solid polymer, upon dissolution).

With respect to depending claim 59, Constien, in view of the teaching of the various treatment fluids of Cooke, JR., teaches wherein the treatment fluid is a gravel packing fluid (Cooke, JR. [0022]) which comprises one or more solid polymers (Constien [0042]; [0050]-[0051]) and one or more polymer breakers ([0043]-[0046]; [0056]).

With respect to depending claim 60, Constien discloses wherein the treatment fluid disrupts or degrades at least a portion of the filter cake and increases the permeability of the formation ([0022]; [0026]; [0037]; [0042]; [0061]).

With respect to depending claim 61, Constien discloses wherein at least a portion of the polymer remains in the underground formation and continuously releases organic acid and a production chemical during hydrocarbon production or water injection until the polymer has completely hydrolyzed ([0038]; [0042]).

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With respect to depending claim 62, Constien discloses wherein the underground formation contains hydrocarbons or water and wherein the process further comprises recovering a hydrocarbon or water from the treated formation ([0007]; [0053]).

With respect to depending claim 63, Constien, in view of the teaching of the introduction of treatment fluid into the formation of Cooke, JR. teaches wherein the treatment fluid containing the solid polymer is introduced into the formation via a well bore which extends to the formation (Cooke, JR. [0023]).

With respect to depending claim 64, Constien in view of Cooke, JR. teaches wherein the solid polymer is introduced into the formation with at treatment fluid as noted above within the rejection of independent claim 41. As taught by Cooke, JR., the polymers are acid sensitive in that the viscosity of the treatment fluid in which they are injected is reduced by the acid generated by the hydrolysis of the solid polymer ([0017]).

With respect to further depending claim 65, Cooke, JR. teaches wherein the viscosifying agent is cross-linked ([0023]). Cooke, JR. further teaches wherein biopolymers having a molecular weight that can be dissolved in an aqueous liquid to be used in the intended treatment operation may be employed ([0022]). Although the reference fails to explicitly teach wherein guar gum, i.e., a biopolymer, is used, the Examiner hereby takes Official Notice that it would have been obvious to one having ordinary skill in the art at the time the invention was made to include guar gum within the treatment fluid of Constien in view of Cooke, JR. in order to impart the desired molecular weight to the treatment fluid.

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With respect to depending claim 66, Constien discloses wherein the treatment fluid further comprises ([0043]) calcium peroxide ([0056]) and wherein the organic acid produced by hydrolysis of the solid polymer leads to the generation of hydrogen peroxide ([0050]-[0051]).

With respect to depending claim 67, Constien discloses wherein the treatment fluid further comprises ammonium bifluoride ([0051]) and wherein the organic acid produced by the hydrolysis of the solid polymer leads to the generation of hydrogen fluoride ([0051]).

With respect to depending claim 76, Constien discloses wherein the said one or other materials released from the solid polymer have functional activity for filter cake treatment or as production chemicals ([0042]-[0058]).

With respect to depending claim 77, Constien discloses wherein the solid polymer is a polymer comprising one or more compounds selected from the group as claimed ([0042]; [0050]).

With respect to depending claim 78, Constien, in view of the teaching of the various treatment fluids of Cooke, JR., teaches wherein the treatment fluid is a gravel packing fluid (Cooke, JR. [0022]) which comprises one or more solid polymers ([0041]; [0050]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shane Bomar can be reached on (571)272-7026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Angela M DiTrani/
Primary Examiner, Art Unit 3676

AD
06/09/11